LP DAAC Status

Dave Meyer

LP DAAC UWG Fall Telecon

September 14, 2011

USGS

NASA

Agenda

(10 a.m. to noon, Central Time)

- LP Topics (Meyer)
  - Welcome and Status (Meyer, 15 minutes)
  - New Products Matrix (Maersperger, 10 minutes)
  - NAALSED review (Jenkerson, 20 minutes)
  - Open discussion (Group, 15 minutes)
- UWG business (Gallo, Schaaf, Meyer)
  - Membership
  - Meeting schedule

LP DAAC Topics

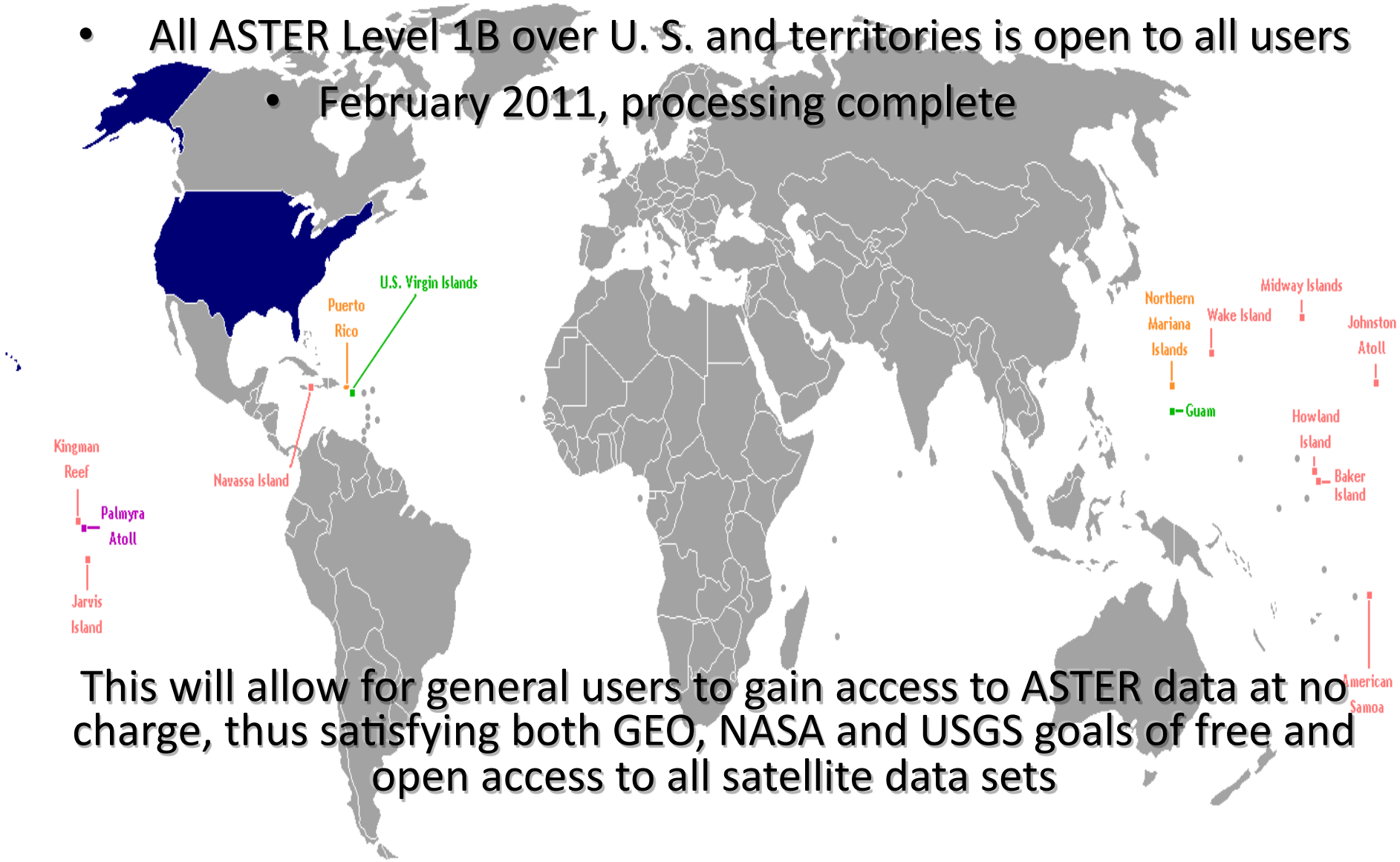
- ASTER L1b production and availability
- MODIS QA/QC
- ASTER Global DEM V2 Update
- Access:
  - Support for NASA EDSIS transition from WIST to REVERB search/access client
  - LP Datasets available through USGS Earth Explorer Search and Access Tool
  - Data Access Workshop
- Distribution metrics
- Citation Policy Update
- Support for NASA ESDIS Coherent Web strategy
- NASA ESDIS User Survey

USGS

NASA

ASTER Level 1B

- All ASTER Level 1B over U. S. and territories is open to all users
  - February 2011, processing complete



This will allow for general users to gain access to ASTER data at no charge, thus satisfying both GEO, NASA and USGS goals of free and open access to all satellite data sets

ASTER Level 1B

- Due recent system hardware processing through put has increased 3-fold
  - Processing the rest of the Archive
  - Africa, Madagascar, Australia are complete (southeast Asia next)
  - Open to other priority areas to work off next?

USGS

NASA

Tutorial on MODIS Q/A

- Action from May, 2001 MODLAND meeting: instruction (and enforcement?) of proper use of MODIS Q/A information.
  - Stronger statements on the web site
  - Tutorial(s)

Tutorial on MODIS Q/A

- LP DAAC is developing a comprehensive two-part tutorial:
  - Part one: find, understand, interpret and use QA information in general (in LDOPE review)
  - Part two: detailed instruction for pixel-level Q/A for specific products:
    - land surface reflectance
    - Vegetation indices
    - BRDF and albedo

USGS

NASA

ASTER GDEM v2.0 validation & release

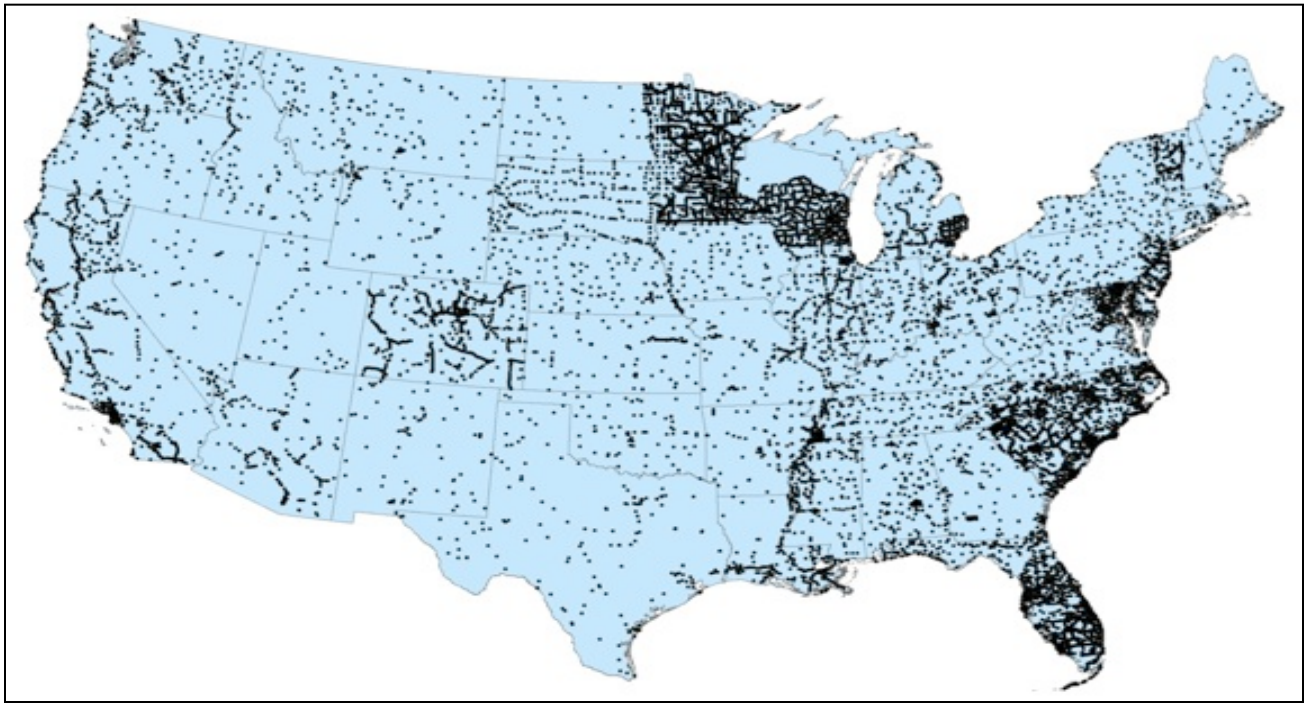
- Validation complete, release scheduled for October 17
- Continuing from version 1 validation:
  - USGS (CONUS)
  - ERSDAC (Japan)
  - NGA (global)
- New contributions
  - JPL (horizontal resolution)
  - GSFC (ICESat global validation)
- Overall:
  - Improved horizontal and vertical accuracy
  - Improved horizontal resolution
  - Substantial reduction in artifacts/anomalies noted in version 1

USGS

NASA

GDEM v2.0 validation: Geodetic Accuracy

- USGS CONUS study (Gesch et al.)
  - 16,000+ "GPS on benchmarks" reference
  - 17 meter LE95 accuracy

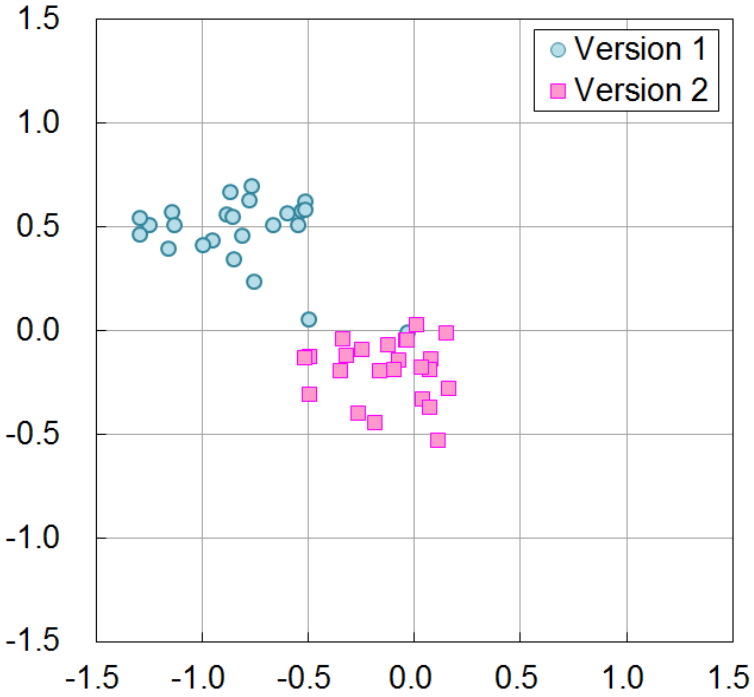


USGS

NASA

GDEM v2.0 validation: locational accuracy

- ERSDAC estimated horizontal resolution and accuracy against 10-meter national elevation grid (Tachikawa et al.).



- Using 4 GDEM tiles in central Honshu (elevation range 0-3000 meters)
- Circular locational accuracy is 0.23 for GDEM2 (0.94 for GDEM1)

USGS

NASA

GDEM v2.0 validation: horizontal resolution

- From Tachikawa, Crippen:
  - GDEM2 comparable to SRTM 1 arc-second resolution
  - (unit in meters)

DEM	Japan Non-LIDAR	West Virginia Non-LIDAR	Utah LIDAR	California LIDAR	Average Non-LIDAR	Average LIDAR
GDEM-1	114	118	119	124	116	121
GDEM-2	72	70	81	83	71	82
SRTM 1-arc-sec	--	72	76	79	72	77
SRTM 3-arc-sec	--	97	101	103	97	102

USGS

NASA

GDEM v2.0 validation: ICESat altimetry

- Compared against 50-meter ICESat-derived control globally (Carabajal)
- Included analysis of land cover and vegetation cover fraction

Region	N	Mean (m)	Median (m)	STD (m)	RMSE (m)	Min (m)	Max (m)
Africa	3601586	2.11	0.97	10.66	10.86	-198.99	361.90
Australia	243066	-1.64	-1.78	6.64	6.84	- 66.72	63.34
Eurasia	4049072	0.58	0.10	10.36	10.38	-389.23	590.38
N. America	7172	-1.96	-2.60	5.86	6.18	-31.93	89.41
S. America	157484	0.86	0.53	7.92	7.97	-155.08	141.41
N. Zealand	111	4.25	1.18	10.59	11.41	-21.03	35.77
W. Europe	107217	-1.56	-1.57	6.34	6.53	-83.00	573.56
Greenland	6	-0.93	-0.48	6.80	6.86	-9.91	7.41

USGS

NASA

Recent Data Access Enhancements

- USGS Earth Explorer
  - Primary client for LDCM
  - Enables Cross-Archive (LP DAAC, USGS Landsat, USGS LTA) data discovery and download
- NASA Reverb – successor to WIST
  - LP DAAC is a primary driver for Reverb development to ensure its users' needs are being met.
- DEM Explorer
  - Collaboration with George Mason University (GMU) to reuse software that is part of the GeoBrain infrastructure
  - Provides ASTER Global DEM user community a visual selection/download interface (OGC-based services)
  - Possibly suited to distribute other ASTER/MODIS/Landsat products as well.

USGS

NASA

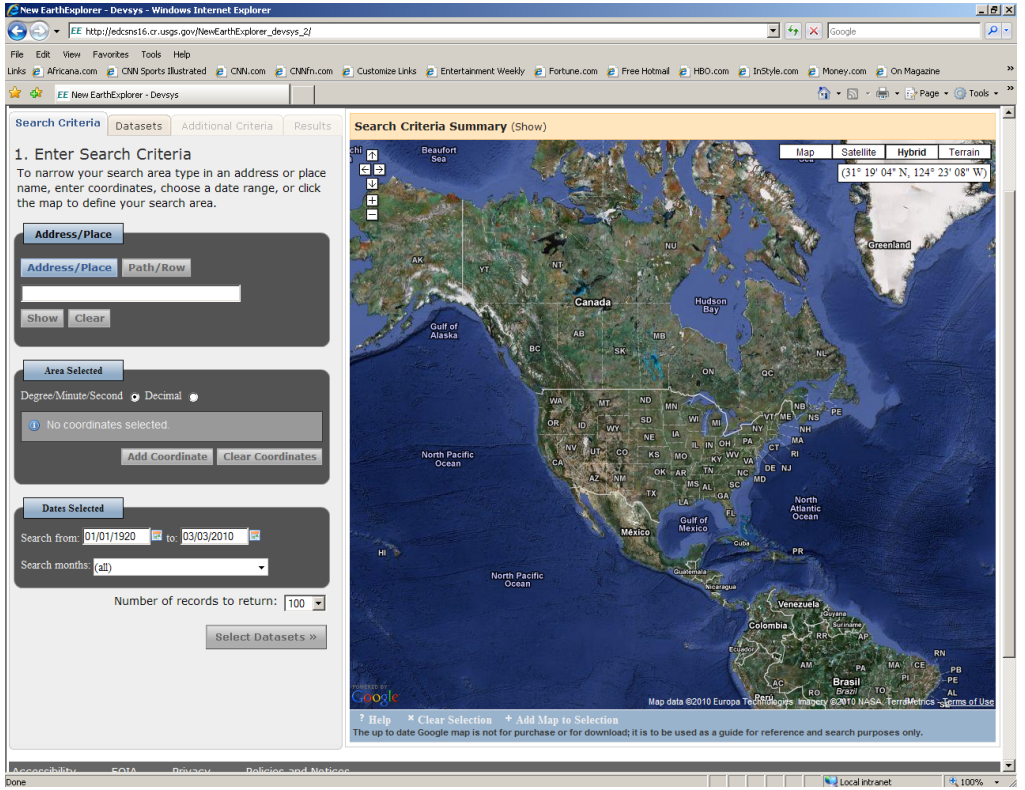
Leveraging USGS "Earth Explorer"

(NEW) Earth Explorer

- Cross-dataset search/access
- Direct download from archive
- Significant upgrade from previous Earth Explorer
- Future LDCM data access client

Earth Explorer Features

- Map viewer for viewing overlay footprints and browse overlays.
- Full Resolution Browse display capability.
- Provides KML access through Google Earth.
- User authentication service through user registration and validation routines.
- Allow multi-point polygon and point searches.
- Add on-demand products to an item selection basket.
- Supports standard product downloads.
- XML, KML, CSV, FGDC, Shape file export options.
- http://earthexplorer.usgs.gov



Next Generation ESDIS Search Interface: Reverb

Released May 16, features:

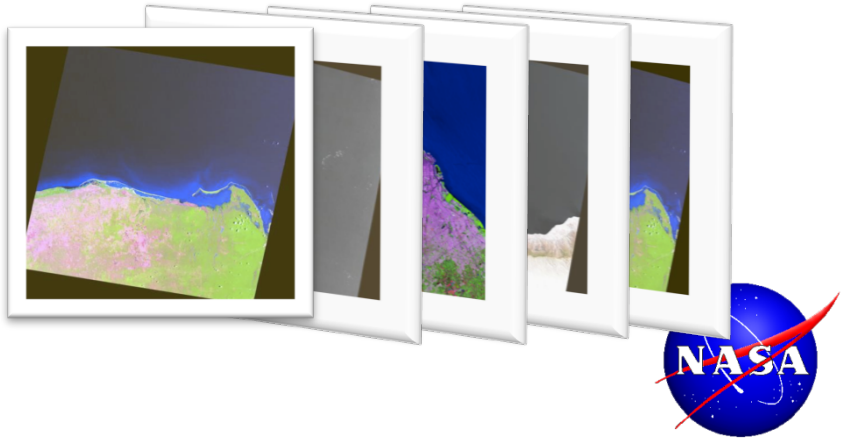
- Fast keyword filtering
- Ability to add entire datasets to cart to support dataset download and ordering
- Ability to apply services directly to datasets
- Temporal and spatial filtering of datasets without granule search (upcoming release)
- Multiple bulk download options (upcoming release)
- http://reverb.echo.nasa.gov/reverb

Future releases:

Location-based searches

Improved selection features (e.g., shape files, KML)

Mosaic pivot viewer, cover flow



USGS

ASTER Global DEM Explorer (DEMEX)

- Collaboration with George Mason University (Liping Di)
- Features include:
  - Visual selection interface
  - Multiple area of interest selection options (including state/county)
  - Mosaicing / Subsetting
  - Multiple output formats (incl. GeoTIFF)
  - Integration with ECHO User Registration
  - OGC standards-based (WMS, WCS)

- http://demex.cr.usgs.gov/DEMEX/

USGS

NASA

DEMEX

- Changes to DEMEX that occurred in last release:
  - SRTM30 (over US) and SRTM90 (global) available
- Current changes going into DEMEX (release October 5):
  - GTOPO30
  - NASA Blue Marble
- Future DEMEX changes
  - user up-loadable shape files
  - additional DEM datasets (GMTED2010, NED)
  - public WMS web service

USGS

NASA

Data Access Roadmap

- In response to the ESDIS User Surveys, UWG & Science Team recommendations, the LP DAAC is developing a data access roadmap to:
  - Identify key components of access functionality
  - Evaluate current clients against use cases
  - Identify key technologies and partnerships necessary to address anticipated needs
  - Provide a strategy with recommendations for future improvements to LP DAAC data access channels & tools
  - Identify avenues to reach user communities (social media, workshops)
- We are soliciting suggestions and recommendations from the UWG team members

USGS

NASA

NASA ESDIS Coherent Web Activity

Coherent Web Phase I Status

•Consolidated ESDIS supported sites into a single website/URL powered by a Content Management System. http://earthdata.nasa.gov/

•Encouraged cross data center linkages by implementing a uniform 'Top Hat' at all Data Centers

Coherent Web Future Plans (Phase II)

•A consolidated calendaring, wiki, and document management capability

•Improved support for mobile devices (iPads, iPhones and Android)

•Update graphics within EOSDIS section

•Integration of tools into the Labs section of the site (For example, Simple Subset Wizard (SSW)

•A dynamic data catalog for the EarthData website to be made available within the ECHO portion of the site

•An ECHO Service Registry to be dynamically displayed

•Federated EarthData content

•An enhanced video library capability

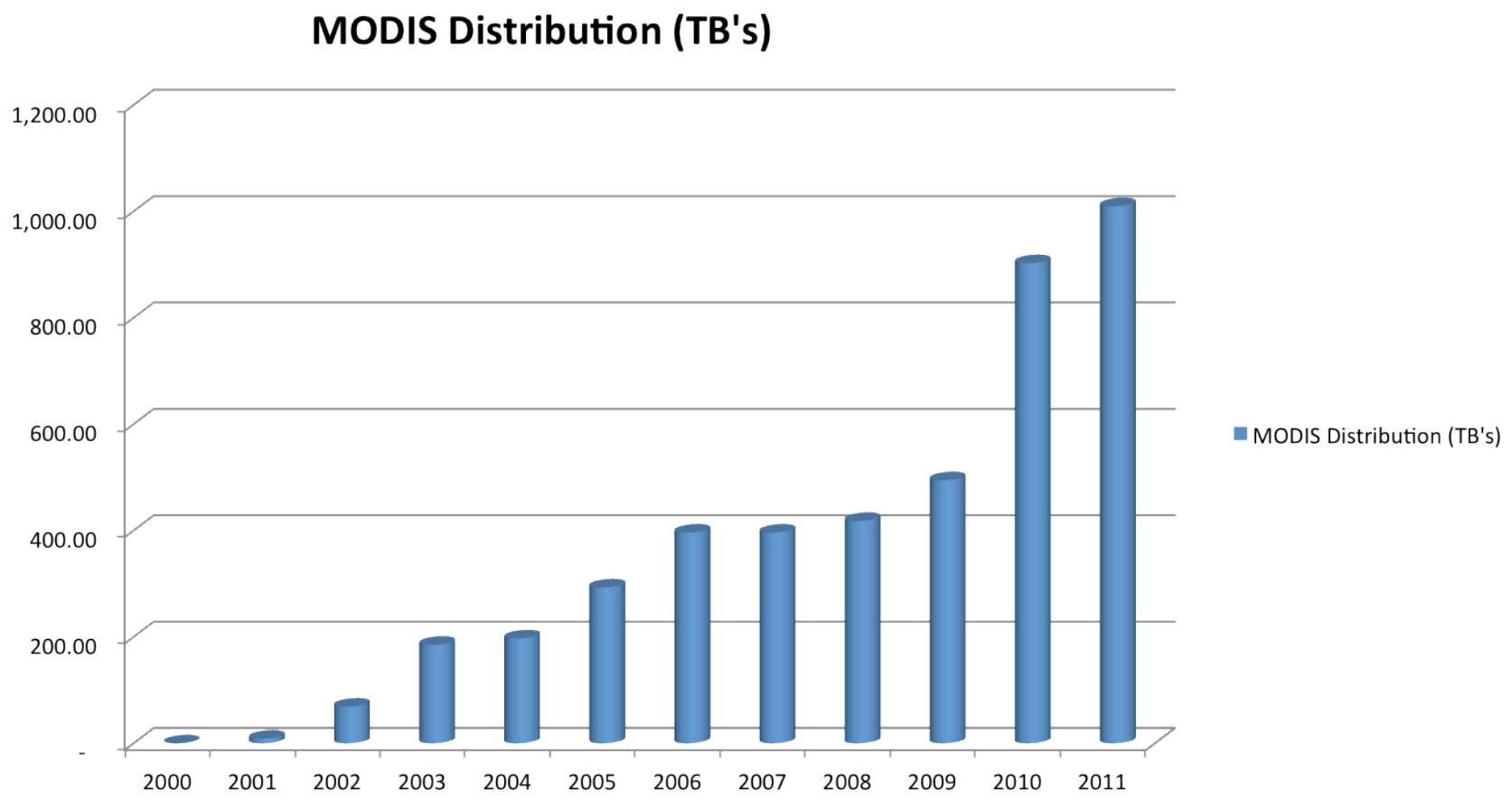
•A data cast feed reader that would aggregate configured data casting feeds from designated EOSDIS data centers and/or ECHO

•Integrate the LANCE website

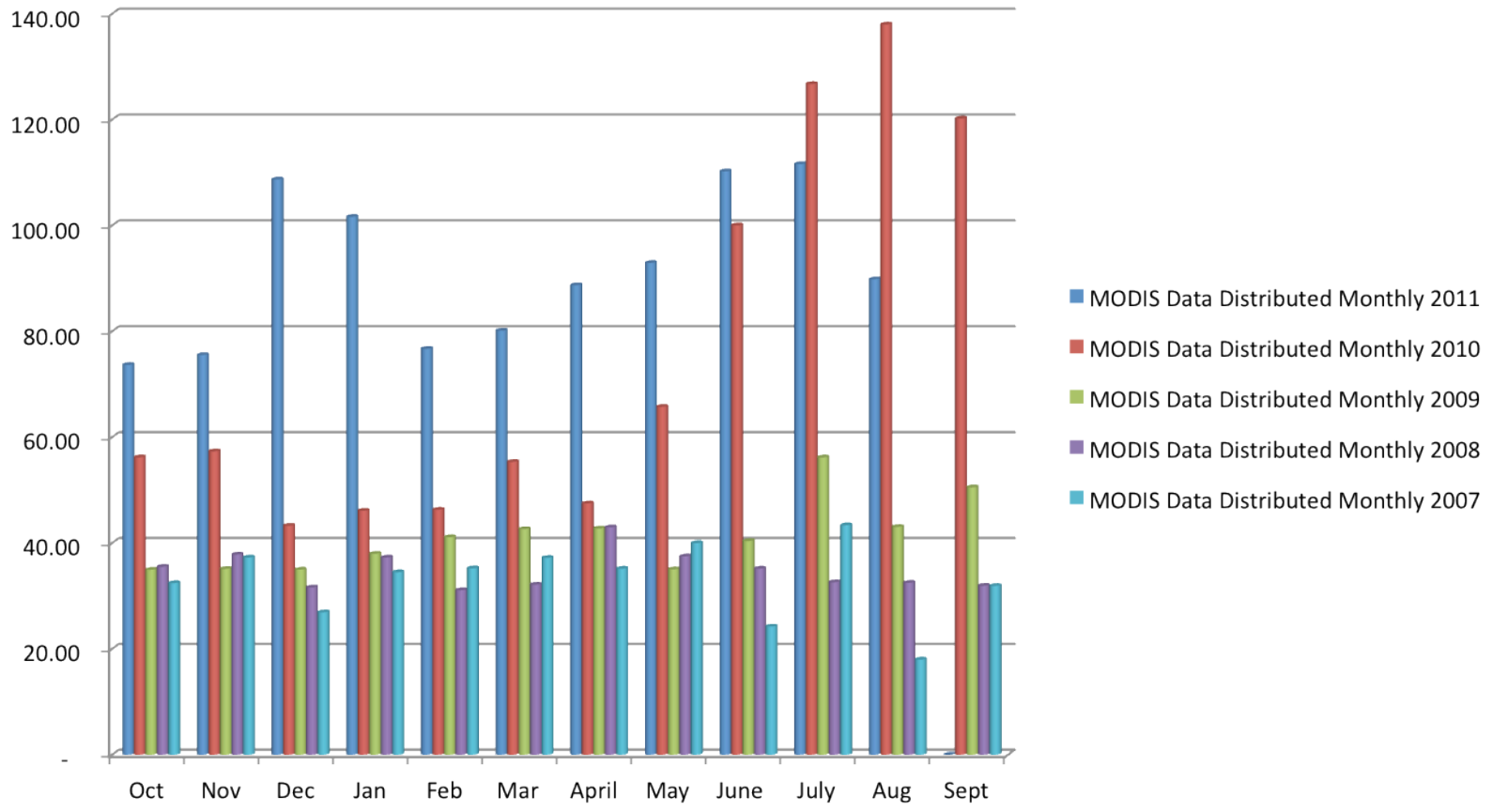
•An advanced web content search capability

•Integrate EarthData website with User Registration System

MODIS Distribution (history)



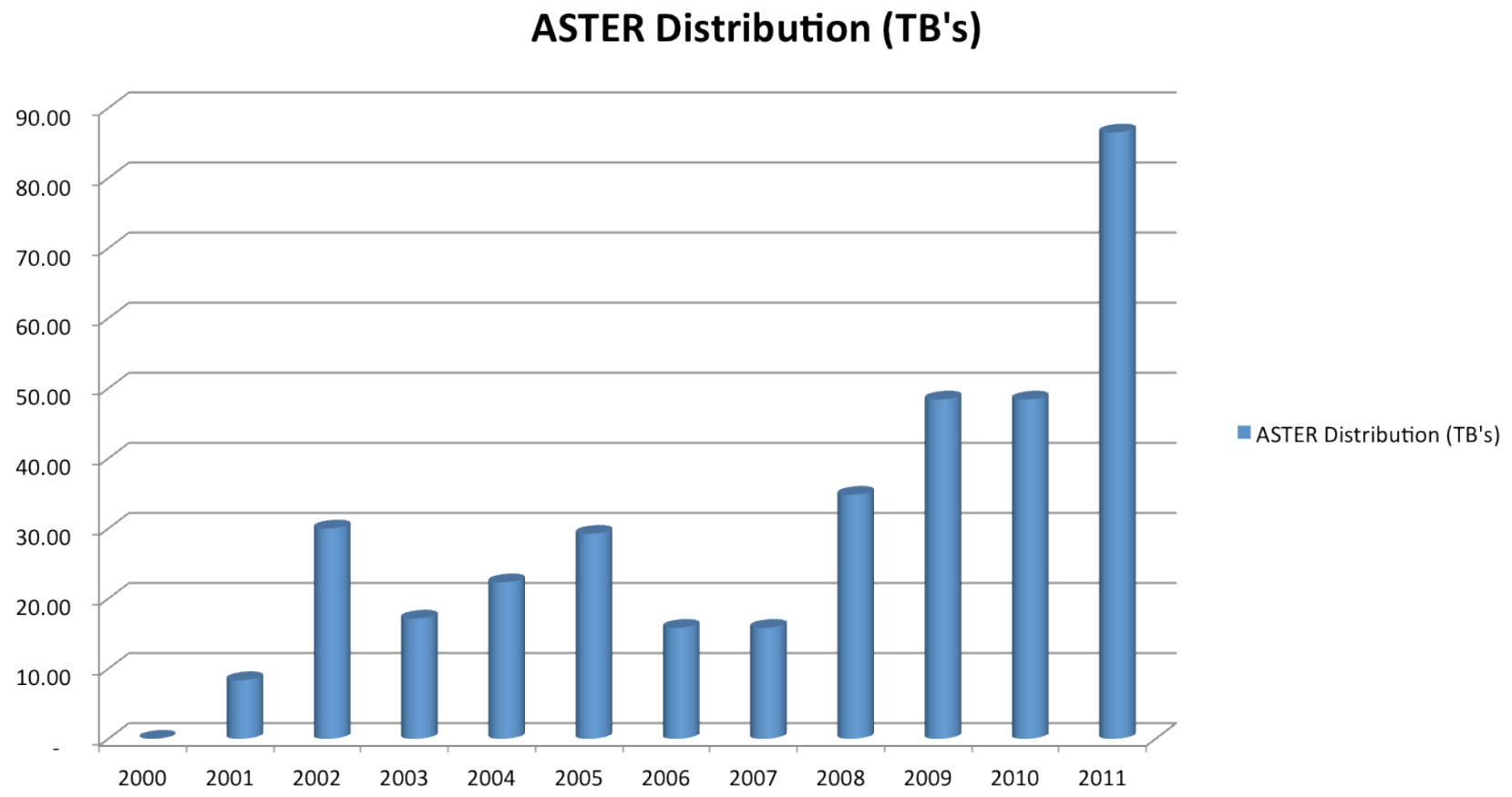
MODIS Distribution (product detail)



USGS

NASA

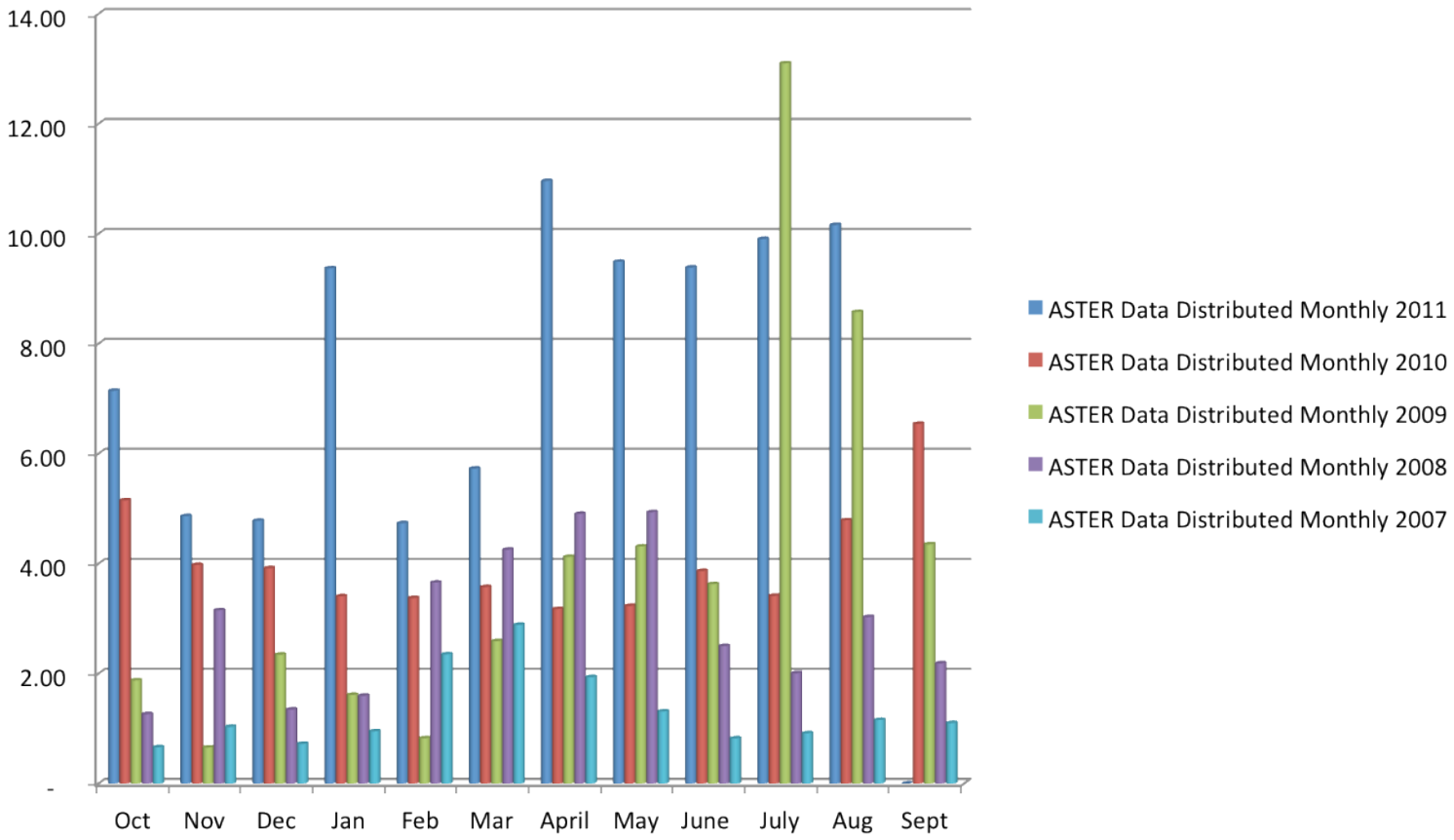
ASTER Distribution (history)



USGS

NASA

ASTER Distribution (product detail)



USGS

NASA


Questions?

MEaSUREs Data Sets

http://science.nasa.gov/earth-science/earth-science-data/Earth-Science-Data-Records-Programs/MEaSUREs-Projects/

Data Set	Developer / Producer	Status
VI/Phenology ESDR	Didan et al., UAZ	Accepted to LP DAAC Provisional data available
WELD	Roy et al., SDSU	Accepted to LP DAAC Provisional data available
Global Forest Cover Change	Townshend et al., UMD	Planned for LP DAAC
Global Digital Topography	Kobrick et al., JPL	Planned for LP DAAC

USGS

NASA

Other Community Data Sets

Data Set	Offerer / Recommender	New Data Set Template
MODIS Thermal Surface Radiances	Carroll	Pending
100 Cities Data Bundles	Prashad	Pending
MOD43 BRDF Gap-filled	Schaaf	Pending
MODIS Ocean Band Reflectance over Land	Wolfe	Pending
MODIS-4-NACP Bundles	Wolfe	Pending
NAALSED	Hulley	Complete

USGS

NASA

Resource for Review: NAALSED

- New Data Set Template
  - Delivered to UWG
- Project Web Site
  - http://emissivity.jpl.nasa.gov/
- Publications
  - http://emissivity.jpl.nasa.gov/pubs
- Validation
  - http://emissivity.jpl.nasa.gov/validation

USGS

NASA

Science Community New Data Set Input

- UWG Members:
  - Please address the following bullets in an email to: dmeyer@usgs.gov, jenkerson@usgs.gov
- Proposed recommendations
  - Science research value: Comments on potential designation as Climate Data Record/ Earth Science Data Record.
  - NASA management priority: Keep, move to other center, move to long term archive, other
  - Suggestions on Level and Type of Service desired: Raise, lower, keep the same

USGS

NASA

New Data Set Input (comments from the UWG)

- **Proposed recommendations: Science research value**
  - Surface emissivity is a critical variable to accurately compute LST and is relatively difficult variable to derive with accuracy. Thus, there are relatively few emissivity data sets currently available.
  - Examples of use of this data set have been published, as have validation results.
  - Recent publications using skin temperatures in lakes derived from this product are useful, though in need of careful interpretation.
  - Other applications of emissivity to examine water bodies and wetlands are likely to be developed.
  - The HDF5 format, the tiling scheme, and projection may not be consistent with existing products.

USGS

NASA

New Data Set Input (Comments from the UWG)

- **Proposed recommendations: Science research value**
  - The temperature and NDVI data included in the final data sets (summer and winter) may have been derived from anytime during those seasons within the 2000-2009 interval. The emissivity (and presumably the LST and NDVI as well) is an average of the clear-sky values for sense within that interval. As the landscape may have changed during a 10 year interval, the most recent values of emissivity and other variables may be more useful for some applications than a mean over such a 10-year interval.
  - Not particularly useful in current ecological applications without an equally aggregated mean surface temperature and change maps.
  - The dataset when georegistered in ENVI is up to several kilometers (thousands of meters) off when compared to orthorectified datasets. This issue is under investigation.
  - Are there results available from ATBD review?

USGS

NASA

New Data Set Input (Comments from the UWG)

- **Proposed recommendations: NASA management priority:** Keep, move to other center, move to long term archive, other
  - Keep at NASA (JPL?) for now until geospatial accuracy is assessed*
  - This data set should be kept, serviced from, and archived at the LP DAAC.

* *Addressed by offerer*: haven't noticed errors outside of the usual range of ASTER geo-location errors.

USGS

NASA

New Data Set Input (comments from the UWG)

- **Proposed recommendations: Suggestions on Level and Type of Service desired:** Raise, lower, keep the same
  - The recommended levels of surface would seem adequate.
  - Rather than a directory and file driven search, where users currently have to move through several levels of ftp directories and file names to retrieve data, some type of map of the area covered by the database, with tiles of available data outlined on the map would be useful.
  - KEEP at same level until geospatial issues are resolved

USGS

NASA

UWG Business

- Membership
  - New Chair: Crystal Schaaf
  - New Member: David Roy
  - Still have one opening (modeler?)
  - Chair rotation proposal
  - Alternate representation proposal
- Meeting schedule
  - Schedule proposal

UWG Business: Chair rotation

- Proposal: Chair rotation
  - Chair term – 3 years (not specified in Charter)
  - First year – "alternate" to existing chair
  - Second and third years – full chair duties as specified by charter
  - First year of new chair as alternate coincides with third year of existing chair (overlapping terms)
  - Ensures continuity of succession

UWG Business: Alternates

- Proposal: Alternate representation proposal
  - Each member should identify alternate from affiliate institution to represent them in their absence.
  - Ensures attendance, was part of original SAP
  - Can “affiliate” institution be different from members home institution?

UWG Business: Meeting schedule

- Proposal: one face-to-face and 3 telecons per year
  - Complaints about August?
  - Proposal one: April face-to-face; July, October, January telecons
  - Proposal two: May face-to-face; August, November, February telecons
  - Set week for telecon (e.g., second week of the month)
  - Alteratives?